

**Amendment and Response**

Serial No.: 10/524,301

Confirmation No.: 6371

Filed: 11 October 2005

For: PREPARATIONS BASED ON AZIRIDINO POLYETHERS AND THE USE THEREOF

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**Remarks**

The Office Action mailed 29 April 2008 has been received and reviewed. Claim 26 having been amended, no claims having been canceled herein, and claims 28-29 having been added, the pending claims are claims 15-29.

Claim 26 has been amended to formally depend from claim 15.

New claims 28 and 29 are supported, for example, by present claims 15 and 21, respectively. New claims 28 and 29 explicitly recite that Z2 includes at least one compound having one aziridino group, and wherein the at least one compound having one aziridino group differs, in its chemical make-up, from at least one compound according to component Z1 in at least one further feature other than the number of the aziridino groups.

Reconsideration and withdrawal of the rejections are respectfully requested.

**Rejection under 35 U.S.C. §102**

The Examiner rejected claims 15-27 under 35 U.S.C. §102(b) as being anticipated by Zech et al. (WO 01/17483) (with U.S. Patent No. 6,894,144 being used as the English language translation of Zech et al. for examination purposes). Applicants respectfully traverse the rejection.

"[F]or anticipation under 35 U.S.C. 102, the reference must teach *every aspect* of the claimed invention either explicitly or impliedly." M.P.E.P. §706.02(V) (emphasis added). Applicants respectfully submit that Zech et al. fail to teach *every aspect* of the presently claimed invention.

As noted by the Examiner, Zech et al. recite the following:

As constituent (D) of the base component, mixtures of N-alkylaziridino compounds are used, the aziridino equivalent masses being able to be varied from 500 to 25000 g/equivalent and the number of N-alkylaziridino groups being able to be varied between 1 and 4 per molecule.

Preferably mixtures of N-alkylaziridino polyethers are used which consist of at least up to 60% of polyether compounds which carry at least two aziridino groups. According to another preferred version of the invention, mixtures of N-alkylaziridino polyethers are used which consist of at least up to 5% of polyether compounds which contain at least 3 aziridino groups.

(Column 6, lines 53-64 of U.S. Patent No. 6,894,144.)

Thus, Zech et al. clearly disclose N-alkylaziridino compounds in which the number of N-alkylaziridino groups can be varied between 1 and 4 per molecule, and mixtures of N-alkylaziridino polyethers. Zech et al. further disclose specific mixtures of *bis*aziridino polyethers (i.e., having on average 2 aziridino groups). For example, Zech et al. disclose composition BM-B2 (e.g., Table 8 at column 12) that includes two mixtures of bisaziridino polyethers, wherein the two mixtures apparently differ at least in number average molecular weight, weight average molecular weight, and composition of the polymer backbone.

However, Zech et al. fail to disclose mixtures of aziridino compounds specifically including *Z1 (including at least one compound having on average 2 aziridino groups or more)* and *Z2 (including at least one compound having 1 aziridino group)*, as recited in the present claims. For at least this reason, Applicants respectfully submit that claims 15-27 are not anticipated by Zech et al.

Furthermore, Applicants respectfully submit that claims 15-27 are not suggested by Zech et al. for at least the following reasons.

The present application relates to dental impression materials useful for taking an impression of the situation in a patient's oral cavity. Often, taking such an impression can be inconvenient for the patient. Thus, it is desirable that the time for taking the impression be as short as possible, without prematurely removing the impression material from the patient's mouth. Premature removal of the impression material can result in a loss of precision and detail if, for example, the impression material has not sufficiently cured.

In an effort to reduce the time for taking the impression, attempts have been made to accelerate the cure of the impression material. For example, impression materials with increased amounts of catalyst have been prepared. However, the cured impression material often exhibits inadequate elastomeric properties to allow for convenient use by the practitioner. As a result, further efforts using increased plasticizer levels have been pursued in attempts to improve the elastomeric properties of the cured impression material. However, increased amounts of plasticizers can result in decreased storage stability due to migration of the plasticizer to the surface of the impression material.

The present invention provides compositions that include ***Z1 (including at least one compound having on average 2 aziridino groups or more)*** and ***Z2 (including at least one compound having 1 aziridino group)***. The compositions described in the present claims can provide impression materials with faster cure times, without the inferior elastomeric properties and reduced storage stabilities often seen with other attempted solutions. The compositions according the present invention can provide the practitioner with a material that reduces the amount of time the uncured impression material spends in the patient's mouth, while still giving the practitioner enough time to achieve a very high precision in the impression. Thus, the present invention can provide an acceleration of the curing process, preferably without detrimentally impacting the material properties of the cured impression material, which has not been suggested in the cited art. Applicants respectfully submit that Zech et al. fail to provide any suggestion for one of skill in the art to purposefully select the combination including ***Z1 (including at least one compound having on average 2 aziridino groups or more)*** and ***Z2 (including at least one compound having 1 aziridino group)***, as recited in the present claims. Thus, the compositions according to the present invention have a required content of monofunctional aziridino compounds, a suggestion of which is lacking from Zech et al.

Specifically, Zech et al. disclose the use of 5 to 100 weight-% of a mixture of N-alkylaziridino compounds with aziridino equivalent masses of 500 to 25,000 g/equivalent as a base component (column 6, lines 53-56). Zech et al. further disclose that mixtures of N-

alkylaziridino compounds can have between one and four N-alkylaziridino groups per molecule (column 6, lines 56-57). However, Zech et al. give no further suggestions as to the possible constituents of such a mixture.

It should be noted that Zech et al. even cite mixtures of polyethers as being preferred which consist of up to 60% of polyether compounds which carry at least two aziridino groups. It is further preferred if at least 5% of polyether compounds contain at least three aziridino groups. Thus, with regard to the amount of difunctional and trifunctional N-alkylaziridino polyethers Zech et al. contain an explicit disclosure. However, Zech et al. lack a similar disclosure with respect to monofunctional aziridino compounds.

As can be clearly taken from the present application, the addition of monofunctional compounds according to the present invention can result in an increase of curing speed in the early phase of curing, resulting in an improved hardness after a conventional time of about 6 minutes before taking the impression material out of the patient's mouth. The increase in curing speed can lead to either an improved impression characteristic when leaving the impression material in the patient's mouth for the usual time, or can allow for an early removal of the impression material without sacrificing precision, compared to materials known in the art. None of these advantages are taught by Zech et al. Further, Applicants have been unable to locate in any of the other documents cited by the Examiner, any mention of an improved acceleration phase resulting in the advantages discussed herein above.

For at least these reasons, Applicants respectfully submit that claims 15-27 are neither taught nor suggested by Zech et al. Reconsideration and withdrawal of the rejection of claims 15-27 under 35 U.S.C. §102 are respectfully requested.

### **New Claims**

Applicants respectfully submit that new claims 28 and 29 are patentable over the cited art for at least reasons similar to those discussed herein above for the patentability of claims 15-27.

In addition, new claims 28 and 29 explicitly recite that Z2 includes at least one compound having one aziridino group, and wherein the at least one compound having one aziridino group differs, in its chemical make-up, from at least one compound according to component Z1 in at least one further feature other than the number of the aziridino groups. Thus, new claims 28-29 explicitly recite monofunctional aziridino compounds that differ from the di- or polyfunctional N-alkylaziridino compounds (e.g., polyethers) in that they are not homologues of each other. For example, the monofunctional aziridino compound can be of the polyether type, while the polyfunctional aziridino compound(s) can be of the polyurethane or polyester type.

In contrast, Applicants respectfully submit that one of skill in the art would recognize that the disclosure of Zech et al. (which has been discussed herein above) relates, for example, to N-alkylaziridino polyethers that are homologues of similar polyether compounds.

Unlike the mixtures of homologues disclosed in the art, the present invention allows for the purposeful selection of monofunctional aziridino compounds that differ from the di- or polyfunctional aziridino compounds such that further improvements of material properties are possible.

Entry and consideration of claims 28 and 29 are respectfully requested.

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**Summary**

It is respectfully submitted that all the pending claims are in condition for allowance and notification to that effect is respectfully requested. The Examiner is invited to contact Applicants' Representatives at the telephone number listed below if it is believed that prosecution of this application may be assisted thereby.

Respectfully submitted

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**CERTIFICATE UNDER 37 CFR §1.8:**

The undersigned hereby certifies that the paper(s), as described hereinabove, are being transmitted via the U.S. Patent and Trademark Office electronic filing system in accordance with 37 CFR §1.6(a)(4) to the Patent and Trademark Office addressed to the Commissioner for Patents, Mail Stop, P.O. Box 1450, Alexandria, VA 22313-1450, on this 9<sup>th</sup> day of October, 2008.

By: 

Name: Dani Moroz

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